

Redefining CUI Pipe Inspection for an Oil and Gas Leader

A prominent oil and gas industry player sought innovative solutions for detecting Corrosion Under Insulation (CUI) within their industrial pipes. Recognizing the limitations of traditional manual inspection processes, they turned to ARIX® Technologies, a leading provider of robotic inspection solutions explicitly tailored for CUI detection.

✔ Project Overview

ARIX successfully provided a full comprehensive grid scan (complete 360° coverage) of 325 linear feet of piping in less than 2 days and 1,625 total scanned feet. Traditional manual inspection methods can only cover a fraction of the piping that ARIX robots scan comprehensively in a day.

🔍 Traditional Inspection Cost Comparison

Traditional manual inspection typically incurs costs **exceeding \$3,500 per day**, with an estimated completion time of around 26 days (about 3 and a half weeks) for a comprehensive scan covering equivalent linear pipe footage. Moreover, this estimation does not encompass supplementary expenses inherent to manual inspections, such as scaffolding, logistics, and equipment rental.

💡 Additional Insights

ARIX's superiority over traditional methods was further exemplified by completing inspections on four insulated pipes within 10 hours. This significant time-saving achievement underscores ARIX's unmatched efficiency and cost-effectiveness compared to traditional manual inspections. To put it into perspective, conventional methods would have cost the client approximately **\$91,000 for the same scope of work**. In contrast, **ARIX delivered the service for less than 30% of that cost**, providing substantial value for the client.

Client Challenge

Corrosion presents significant challenges in aging plants and refineries, impacting safety, operations, environmental concerns, and company reputations. Asset integrity managers face the daunting task of making effective repair and maintenance decisions amidst these complex challenges. Lacking tools for actionable insights hinders their ability to address corrosion proactively. This leads to increased repair costs, lengthy inspection cycles, and unforeseen production disruptions. **Corrosion costs U.S. industries \$276 billion annually, with CUI, often the root cause of leaks, accounting for 40-60% of maintenance costs***.



The image above shows extensive corrosion under the insulation.

*Corrosion Sources: ExxonMobil Chemical 2003, presented to European Federation of Corrosion (EFC)
NACE International: <http://impact.nace.org/documents/ccsupp.pdf>



The image above shows ARIX Technologies robot at a 40-foot elevation, eliminating the need for scaffolding.

Robotic inspection completed

1,625

scanned feet of piping in 2 days

Robotic inspection with ARIX is

13x faster

than traditional methods

ARIX inspection services cost

70% less

than traditional methods

Client Success with ARIX

In a recent collaboration with a leading oil and gas refiner, ARIX Technologies delivered meaningful results. Their robotic inspection technology provided a full comprehensive grid scan **13 times faster** than traditional approaches.

As a result, the cost of ARIX's services decreased total inspection expenses by approximately 70%. Furthermore, the objective nature of the data collected **eliminates the potential for human error and fatigue** often associated with manual inspections.

ARIX's Solution

ARIX Technologies' flagship inspection robot, VENUS, represents unparalleled efficiency and precision in Corrosion-Under-Insulation (CUI) pipe inspections. Unlike manual inspection crews, which are limited by factors such as fatigue and accessibility, VENUS operates tirelessly under a wide range of conditions, delivering consistent and reliable results. Equipped with state-of-the-art sensors, VENUS navigates through complex piping systems easily, reaching areas often inaccessible to human inspectors and providing thorough and actionable insights.

Conclusion

The partnership between ARIX Technologies and its client exemplifies a transformative shift in CUI pipe inspection methodologies. By embracing robotic inspection technology, organizations can achieve unprecedented efficiency, accuracy, and cost-effectiveness in their inspection processes, enhancing operational performance and ensuring the integrity and safety of critical infrastructure.